Build A Molecule Lab Activity

Introduction

Yesterday we learned about the molecular geometry of molecules by looking at the number of bonds and the number of nonbonding pairs (or lone pairs) around the central atoms. Today, we will be making molecules out of toothpicks and various types of candy in order to gauge how the molecules actually look in 3-D.

Purpose

- Use Lewis structures to determine the shape of a molecule in 3-D.

Materials

- Toothpicks (both colored and plain)
- Variety of soft candy
- VSEPR Handout

Procedure

1) Draw the Lewis structure for each of the following molecules
    a. CO_2
    b. BF_3
    c. H_2O
    d. BF_3
    e. CF_4
    f. PH_3
    g. SO_2
2) Use the plain toothpicks to represent bonding pairs between atoms, and colored toothpicks to represent lone pairs.
3) From your Lewis structure, and the handout create a 3-D representation of the molecule.
4) For each atom, choose 1 color of a specific candy to represent that atom.
5) Position the candies so that they are as far away from each other as possible.
6) Record the molecule, number of electron pairs, number of nonbonding pairs, the shape of the molecule, and whether the molecule is polar or nonpolar in your data table.
7) Throw all used toothpicks away and enjoy eating your candy!

Data Table

Molecule	Number of electron pairs (Things around central atom)	Bonding Pairs around central atom	Number of nonbonding pairs around central atom	Shape of the Molecule	Polarity (polar or nonpolar)

Observations

-Draw Lewis structures for each of your molecules.